

# KEWANEE

## SQUARE ♦ HEAT TYPE "R" BOILER

For Heating

Medium Sized

Buildings

Dependably with

High Efficiency



KEWANEE-ROSS CORPORATION

Division of American Radiator & Standard Sanitary Corporation

KEWANEE, ILLINOIS





# The **VERSATILE** **KEWANEE**® SQUARE • HEAT TYPE "R" BOILER

12 SIZES . . . 216,000 TO 1,200,000 BTU HOURLY  
900 TO 5,000 SQ FT STEAM . . . 1,440 TO 8,000 SQ FT WATER



Offices—Showrooms



Schools



Apartments



Large Homes



Factories

Never before has a boiler been built . . . not even by Kewanee . . . which has the versatility of KEWANEE SQUARE-HEAT. It's ideal for any medium size building . . . office or store building, school, motel, small factory or large home.

Square-Heat burns any fuel . . . Oil, Gas or Coal . . . with "top" efficiency, and a *change from one to another*, or from mechanical to hand firing or back again can be made quickly and inexpensively.

Whether teamed with radiant baseboards, wall, floor or ceiling coils or panels, convectors or conventional radiators, Kewanee Square-Heat Boiler provides a healthy steel heart for the system. Like all Kewanee steel boilers it can be pushed *far beyond its nominal*

*rated capacity* and continue to operate at full efficiency.

The result of over 85 years of boiler building experience Square-Heat brings to medium size buildings that heating dependability and economy for which Kewanee Boilers have long been famous.

Square-Heat Boilers conform to the last detail all boiler code requirements of A.S.M.E. and S.B.I. . . . *in addition*, the name Kewanee guarantees performance well above any code requirements.

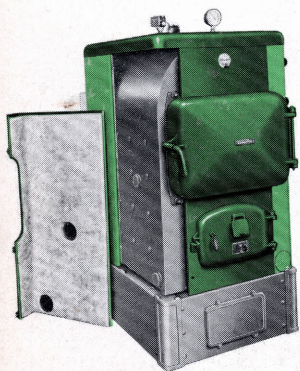
## SMARTLINE JACKETS

The trim insulating steel jacket in two-tone green baked enamel gives the Square-Heat Boiler "eye appeal" plus.

*Heavy insulation* with a one inch layer of Fiberglas keeps heat inside the boiler, reduces heat loss and helps save fuel.

*Easily Installed at Any Time*

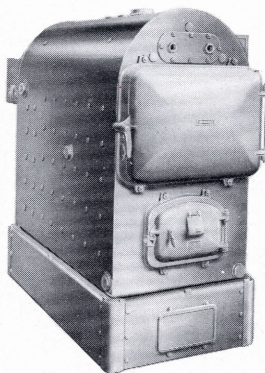
Tailormade to fit the 12 sizes, the Smartline Jacket may be ordered as optional equipment, and can be quickly assembled and installed on a new job or on a boiler already installed *without disconnecting any of the piping*. Insert a dozen self-tapping sheet metal screws and the jacket is on.



## FOR OIL, GAS OR STOKER

Kewanee Square-Heat is correctly designed for "top" efficiency whether fired mechanically or by hand. Burners may be mounted from front or rear and the boiler is adaptable for stoker firing from front, rear or either side.

An important feature is the ease with which Square-Heat can be switched from mechanical to hand firing, or back again.

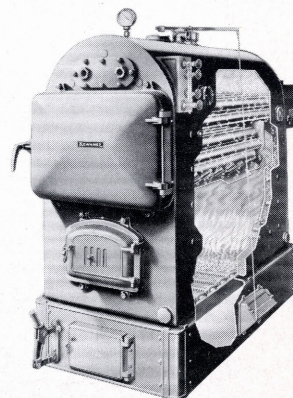


## FOR HAND-FIRED COAL

Kewanee Square-Heat Boiler is *Versatile* in every respect. It operates "on the job" at very high efficiencies with hand-fired coal as well as other fuels.

Generous size fire and ash doors and convenient shaker arm grate assembly, make it easy to care for. Firedoor with secondary air slides is furnished with boilers to be stoker or hand-fired.

*For further information on Square-Heat for hand firing, contact your local Kewanee Sales office.*





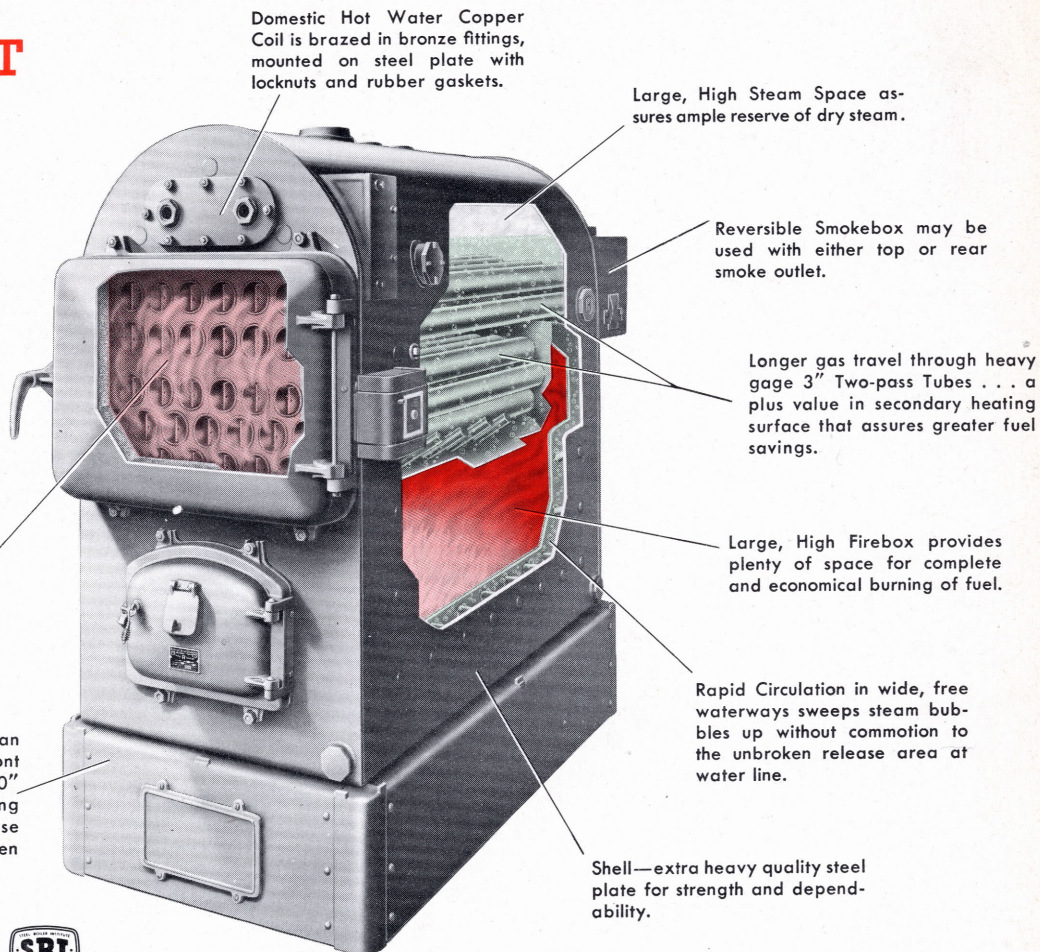
# Look SQUARE • HEAT Over . . .

One glance at its husky shell tells of extra sturdiness. Then *look inside the boiler* and see the many features that pack so much efficiency into comparatively small space.

At every level of its rated capacity . . . even at loads far above nominal ratings . . . Square-Heat operates at full efficiency. Hydrostatically tested at 60 pounds it operates at up to 15 lbs per sq in steam or 30 lbs hot water.

Spinner Blades in oil-gas boilers . . . 3R1 to 3R8 inclusive . . . swirl hot gases against the tube walls assuring maximum heat transfer to the boiler water.

Extra substantial Steel Base can be reversed for firing from front or rear. Extra high bases (20" and 30") for mechanical firing instead of standard 14 in. base are available, at extra cost, when specified.

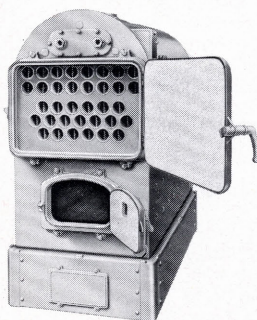


Reg. U.S. Pat. Off.  
MEMBER

## STURDY CAST IRON DOORS ... ANOTHER MARK OF A QUALITY PRODUCT

Heavily insulated flue and fire doors lined with high temperature refractory prevents warping. Both doors and frames are machine ground to form close fit.

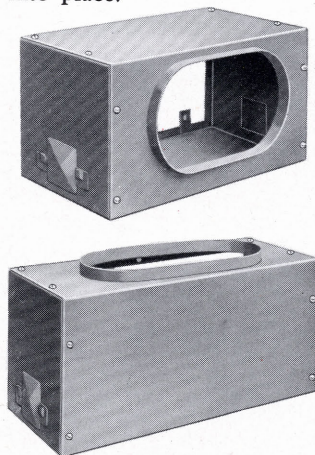
Flame may be readily observed through hinged opening without opening fire door.



## REVERSIBLE SMOKEBOX

This exclusive Kewanee development makes it unnecessary to know whether rear or top smoke outlet will be used when ordering the boiler.

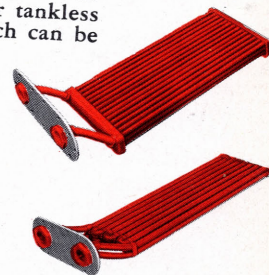
To change the position of the smoke outlet from rear to top, or vice versa, simply remove the eight bolts from the angle sheet forming the outlet and adjacent side, reverse and bolt into place.



## DOMESTIC HOT WATER . . . ALL YEAR 'ROUND!

Every Kewanee Square-Heat Boiler is arranged for *easy installation of Indirect Water Heating Coils* (either tankless or storage tank type) which can be fitted at any time by simply removing coil opening cover plate and bolting coil in place.

For *Gravity Circulation* with Storage Tank, check the lefthand table below. For *Instantaneous Flow*, see righthand table.



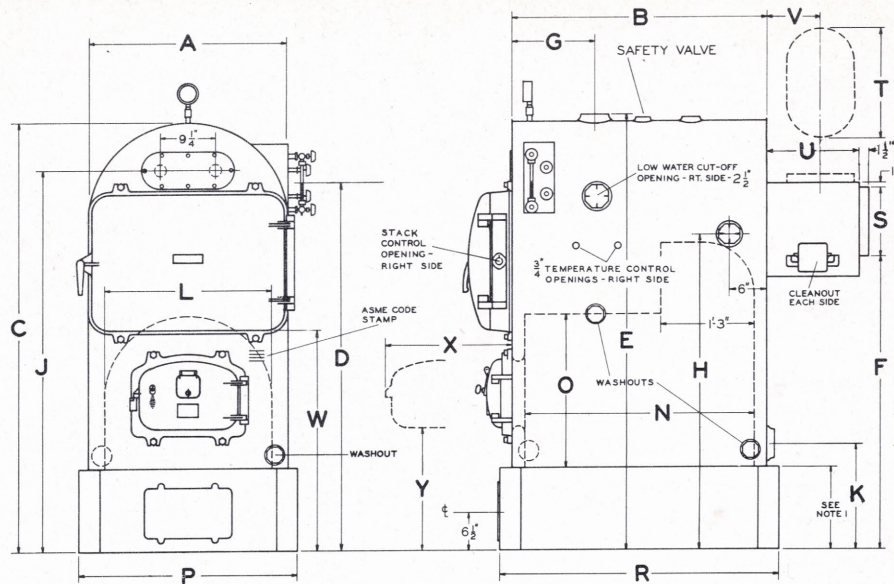
Square R Boilers have tapings each side for external Water Heater, also for Low Water cut-off with Plug. All 3R Series have opening for installing Kewanee Indirect Hot Water Heating Coils at extra cost.

for STORAGE TANK 40°-140° rise—3 hours Gallons with Boiler Water					INSTANTANEOUS flow 40°-140° rise 180° Boiler Water			
Boiler	Coil	212°	180°	Surface Sq. Ft.	Coil	Gallons in 1 Hr. 1 Min.	Surface Sq. Ft.	
3R1	SR6-24	90	55	3.0	TON-1	220	3.7	14.7
3R2	SR8-24	120	70	3.9	QON-1	280	4.7	18.7
3R3, 5	DR6-24	180	110	6.0	QON-2	350	5.8	23.4
3R4, 6	DR8-24	240	145	7.7	QON-3	420	7.0	28.0
3R7	DR8-30	320	190	9.9	QON-4	490	8.2	32.6
3R9	DR8-36	400	240	11.9	QON-5	490	8.2	32.6
3R10	DR8-42	480	290	14.0	QON-6	600	10.0	40.0
3R11	DR8-48	560	335	16.1	QON-7	600	10.0	40.0
3R12	DR8-54	640	385	18.2	QON-8	700	11.7	46.7
	DR8-60	720	430	20.3	QON-8	700	11.7	46.7
	DR8-66	800	480	22.4	QON-8	700	11.7	46.7
	DR8-72	880	530	24.5				

Coils listed above are maximum length for each boiler. Smaller sizes may be substituted for less hot water capacity. Inlet and Outlet same size iron pipe tap, 1" on TON and 1 1/4" on QON tankless, also 1 1/4" on DR6 & DR8 storage tank coils and 1" on SR6 & SR8.



# KEWANEE SQUARE-HEAT TYPE "R" BOILER



RATINGS . . . MECHANICALLY FIRED

Boiler No.	SBI Net Rating			Heating Surface (SBI min) sq ft	Furnace Volume (SBI min) cu ft	Safety Valve Capacity lb steam per hr	Fuel Burning Rates		
	Steam sq ft	Water sq ft	Btu 1000's per hr				Oil* gal per hr	Gas 1000's Btu per hr	Stoker** lb per hr
3R1	900	1440	216	53	8.2	265	3.0	405	36
3R2	1100	1760	264	65	10.0	325	3.7	495	44
3R3	1300	2080	312	77	11.8	385	4.3	585	52
3R4	1500	2400	360	88	13.6	440	5.0	675	60
3R5	1800	2880	432	106	16.4	530	6.0	810	72
3R6	2200	3520	528	129	20.0	645	7.3	990	88
3R7	2600	4160	624	153	23.6	765	8.7	1170	104
3R8	3000	4800	720	177	27.3	885	10.0	1350	120
3R9	3500	5600	840	206	31.8	1030	11.7	1575	140
3R10	4000	6400	960	236	36.3	1180	13.3	1800	160
3R11	4500	7200	1080	265	40.9	1325	15.0	2025	180
3R12	5000	8000	1200	294	45.4	1470	16.7	2250	200

\*Fuel burning rates based on 140,000 Btu oil.

\*\*Based on coal having 12,000 Btu per lb as fired.

NOTE 1—Standard base is 14 inches high. Bases of 20" and 30" height available for mechanical firing at additional cost.

NOTE 2—Boiler ratings do not include allowance for heating domestic water by indirect coils. When the hot water demand is added to the heating load for more than ten minutes in any hour, an allowance of 4 sq ft of steam radiation or 6.4 sq ft of water radiation must be added for each gallon of water heated.

Standard equipment—6 cleanout plugs, 3R1 to 3R11. 8 cleanout plugs, 3R12. Socket wrench with extra set of gaskets. Steel base complete with 8 x 14 in. covered opening. Flue and soot scrapers with handles. Spinner blades for 3R1 to 3R8 Oil or Gas boilers only.

Standard trim, steam—Water gage, two compression gage cocks, steam gage, pop safety valve.

Water — Combination altitude gage and thermometer only.

DIMENSIONS (feet—inches)	boiler number	3R1	3R2	3R3	3R4	3R5	3R6	3R7	3R8	3R9	3R10	3R11	3R12
A —boiler width overall	2-6	2-6	2-6	2-6	2-10	2-10	2-10	2-10	2-10	3-5	3-5	3-5	3-5
—jacket width	2-7 1/2	2-7 1/2	2-7 1/2	2-7 1/2	3-0	3-0	3-0	3-0	3-0	3-7	3-7	3-7	3-7
B —boiler length	2-6 1/2	3-0 1/2	3-6 1/2	4-0 1/2	3-6 1/2	4-2 1/2	4-10	5-7	4-8	5-4	6-0	6-7	6-7
—jacket length	2-9 1/2	3-3 1/2	3-9 1/2	4-3 1/2	3-9 1/2	4-5 1/2	5-1	5-10	4-11	5-7	6-3	6-10	6-10
C —boiler height	5-6	5-6	5-6	5-6	6-1	6-1	6-1	6-1	6-1	6-10 1/2	6-10 1/2	6-10 1/2	6-10 1/2
—jacket height from floor	5-6 1/2	5-6 1/2	5-6 1/2	5-6 1/2	6-2	6-2	6-2	6-2	6-2	6-10 1/2	6-10 1/2	6-10 1/2	6-10 1/2
D —water line height	4-7 1/2	4-7 1/2	4-7 1/2	4-7 1/2	5-2 1/2	5-2 1/2	5-2 1/2	5-2 1/2	5-10 1/2	5-10 1/2	5-10 1/2	5-10 1/2	5-10 1/2
E —steam or water supply height	5-6 1/2	5-6 1/2	5-6 1/2	5-6 1/2	6-2	6-2	6-2	6-2	7-2	7-2	7-2	7-2	7-2
F —smoke outlet height	3-8 1/2	3-8 1/2	3-8 1/2	3-8 1/2	4-1	4-1	4-1	4-1	4-6 1/2	4-6 1/2	4-6 1/2	4-6 1/2	4-6 1/2
G —steam or water supply	0-10	1-0	1-2	1-4	1-2	1-5	1-7	1-10	1-4	1-6	1-8	2-0	2-0
H —heater connection height, each side	4-0 1/2	4-0 1/2	4-0 1/2	4-0 1/2	4-5 1/2	4-5 1/2	4-5 1/2	4-5 1/2	4-10 1/2	4-10 1/2	4-10 1/2	4-10 1/2	4-10 1/2
J —coil connection height	4-9 1/2	4-9 1/2	4-9 1/2	4-9 1/2	5-4 1/2	5-4 1/2	5-4 1/2	5-4 1/2	6-0 1/2	6-0 1/2	6-0 1/2	6-0 1/2	6-0 1/2
K —return height	1-5 1/2	1-5 1/2	1-5 1/2	1-5 1/2	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6	1-6
L —firebox—width	2-0	2-0	2-0	2-0	2-4	2-4	2-4	2-4	2-11	2-11	2-11	2-11	2-11
N —length	2-1 1/2	2-7 1/2	3-1 1/2	3-7 1/2	3-1 1/2	3-9	4-5	5-2	4-3	4-11	5-6 1/2	6-2	6-2
O —height	1-9 1/2	1-9 1/2	1-9 1/2	1-9 1/2	2-2	2-2	2-2	2-2	2-7	2-7	2-7	2-7	2-7
P —base—width x 14 in. high	2-8 1/2	2-8 1/2	2-8 1/2	2-8 1/2	3-0 1/2	3-0 1/2	3-0 1/2	3-0 1/2	3-8	3-8	3-8	3-8	3-8
R —length	2-10 1/2	3-4 1/2	3-10 1/2	4-4 1/2	3-10 1/2	4-6 1/2	5-2	5-11	5-0	5-8	6-3 1/2	6-11	6-11
S —smoke outlet—width	0-9	0-9	0-9	0-9	0-11 1/2	0-11 1/2	0-11 1/2	0-11 1/2	1-1 1/2	1-1 1/2	1-1 1/2	1-1 1/2	1-1 1/2
T —length	1-4 3/4	1-4 3/4	1-4 3/4	1-4 3/4	1-9 1/2	1-9 1/2	1-9 1/2	1-9 1/2	1-11 1/2	1-11 1/2	1-11 1/2	1-11 1/2	1-11 1/2
U —smokebox overall	1-1	1-1	1-1	1-1	1-3 1/2	1-3 1/2	1-3 1/2	1-3 1/2	1-6 1/2	1-6 1/2	1-6 1/2	1-6 1/2	1-6 1/2
V —smoke outlet location	0-7 1/2	0-7 1/2	0-7 1/2	0-7 1/2	0-8 3/4	0-8 3/4	0-8 3/4	0-8 3/4	0-10 3/4	0-10 3/4	0-10 3/4	0-10 3/4	0-10 3/4
W —floor to bottom of fluedoor	2-10	2-10	2-10	2-10	3-2	3-2	3-2	3-2	3-7 1/2	3-7 1/2	3-7 1/2	3-7 1/2	3-7 1/2
X —opened firedoor to boiler	1-9 1/2	1-9 1/2	1-9 1/2	1-9 1/2	1-9 1/2	1-9 1/2	1-9 1/2	1-9 1/2	2-3	2-3	2-3	2-3	2-3
Y —floor to bottom of firedoor	1-7 1/2	1-7 1/2	1-7 1/2	1-7 1/2	1-9	1-9	1-9	1-9	1-9 1/2	1-9 1/2	1-9 1/2	1-9 1/2	1-9 1/2
—firedoor opening in boiler—width	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-8	1-8	1-8	1-8	1-8
—height	0-11	0-11	0-11	0-11	0-11	0-11	0-11	0-11	1-0	1-0	1-0	1-0	1-0
breaching diameter (when flattened, fits oval smoke neck)	1-2	1-2	1-2	1-2	1-6	1-6	1-6	1-6	1-8	1-8	1-8	1-8	1-8
chimney—diameter	0-10	0-11	1-0	1-0	1-1	1-2	1-3	1-4	1-4	1-5	1-6	1-6	1-6
—height	30-0	35-0	35-0	40-0	35-0	40-0	40-0	45-0	35-0	40-0	45-0	50-0	50-0
steam supply size	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-6 †	0-6 †	0-6 †	0-6 †	0-6 †
return size	0-3	0-3	0-3	0-3	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-4	0-4
heater connection size	0-2 1/2	0-2 1/2	0-2 1/2	0-2 1/2	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3	0-3
outside surface to cover, unjacketed..sq ft	38	43	48	53	58	65	73	82	82	90	99	107	107
approximate weight, unjacketed...lb	1500	1650	1800	1950	2250	2475	2725	3000	3375	3650	3850	4200	4200

†150 lb American Standard Flange. Eight 3/4 in. bolts, 9/16 in. bolt circle.